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**Improving Courtesy Exam Efficiency
in the South Carolina Forestry Commission
Best Management Practices Program**

Guy Sabin

South Carolina Forestry Commission

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Problem Statement

Completion of Courtesy Exams (CEs) is one of the most important measures of success in the implementation of *South Carolina Best Management Practices for Forestry*. Courtesy Exams are a core service of the Best Management Practices (BMP) Program, and are linked to grant funding, the agency strategic plan, and the Employee Performance Management System (EPMS). This project will evaluate work processes of conducting Courtesy Exams to identify limiting factors, choose the most successful practices from different field offices, and improve efficiency to increase the number of Courtesy Exams completed each month.

South Carolina Best Management Practices for Forestry are voluntary guidelines for protecting water quality and minimizing environmental impacts during forestry operations. Although BMPs are non-regulatory, they are based on requirements of many state and federal laws such as the US Clean Water Act and SC Pollution Control Act. Failure to comply with BMPs may result in enforcement action by SC Department of Health and Environmental Control or the US Army Corps of Engineers. The South Carolina Forestry Commission (SCFC) is designated by state law as the agency responsible for public oversight and guidance for forest management practices, and is charged with establishing Best Management Practices and related monitoring programs to assure compliance with state and federal regulations.

Courtesy Exams are a key feature of the BMP Program. A Courtesy Exam (CE) typically involves a specially trained BMP Forester making from two to five visits to an active forestry operation to assess potential problems, provide recommendations for compliance, and evaluate

implementation of BMPs. A final visit is conducted to ensure successful stabilization, clean-up, and completion of BMPs necessary to close out a site. The actual number of visits by the BMP Forester will be based on the complexity and size of the operation and risk of water quality impacts. The Courtesy Exam program has proven to be a highly successful method of promoting BMP compliance, and has been adopted by many other southern states.

The SCFC BMP Program currently consists of three BMP Foresters and one program manager. Each BMP Forester covers a region of the state consisting of 13 to 19 counties. Responsibilities of the BMP Foresters include administering the CE program, responding to complaints and requests for assistance, delivering BMP training and education programs, conducting BMP compliance monitoring, and involvement with other agency efforts such as wildfire control, prescribed burning, and hurricane response.

Data Collection

Data was collected for this project using three separate processes. First, annual Courtesy Exam performance data was compiled to provide a baseline for future comparison. Secondly, the steps required to complete a Courtesy Exam were mapped and critical processes and decision points identified. Finally, a structured in-depth interview was conducted with each BMP Forester in their work unit. This also included a review of sample paperwork, filing systems, and methods for tracking and organizing pending Courtesy Exams.

Performance data included monthly CE completions and total site visits by each BMP Forester for a period of two years. This allowed comparison of monthly and annual averages of CE completions, site visits, and site visits per CE for each individual BMP Forester and for the entire group.

Drawing from job descriptions, EPMS documents, and field experience, the steps involved in completing a typical Courtesy Exam were summarized. These standardized steps were compared with results of the work-unit reviews to identify obstacles to CE productivity.

The work unit review consisted of an interview and assessment of physical methods. The interview was a series of 33 open-ended questions covering the topics of Mission and Goals; Personal Organization, Relationships, and Outside Duties; Reference Materials, Equipment, Training, and Support; Courtesy Exam Initiation and Planning; Courtesy Exam Completion and Reporting; and Opportunities and Barriers. Each interview was led by a neutral facilitator and took approximately three hours to complete. Physical assessment included examination of files, randomly selected samples of correspondence, planners, and log books.

Data Analysis

Performance data for Courtesy Exam completions and site visits for 2009 and 2010 were examined for trends. These two years of data represent a relatively stable period, with three experienced, full-time BMP Foresters on staff. Production by part-time and inexperienced foresters was not considered. For this period, BMP Foresters averaged completion of 9.7

Courtesy Exams per month, and made an average of 3.6 site visits per completed Courtesy Exam. Average individual BMP Forester performance ranged from 8.13 CEs/month to 11.26 CEs/month.

Data reveals that the BMP Forester who completed the most Courtesy Exams was not the most efficient in terms of sites visits per CE completed. In fact the highest performer averaged 4.5 visits/CE while the other BMP Foresters averaged 3.0 visits/CE. The primary difference is that the highest performing forester has developed a process that allows 50.9 site visits per month, compared to an average of 26.6 site visits per month by other BMP Foresters.

The key conclusion from reviewing performance data is that managing work processes to maximize productive field time results in the highest completion of Courtesy Exams.

The step-by-step process of completing a Courtesy Exam (see Appendix) was developed using job descriptions, EPMS documents, and field experience. Review of the process with BMP Foresters revealed that the identified steps are consistently applied and well understood. The process of developing this flow chart indicated that further analysis should focus on the work processes used to complete each step.

Work processes of the BMP Program were evaluated in Fall 2010 through a series of in-depth interviews with each BMP Forester and physical check of filing systems, correspondence, logbooks, and notes. The most important elements of the interviews related to CE initiation,

planning, completion, and reporting. Other parts of the review established a baseline of job duties other than Courtesy Exams, and will be used to guide future actions within the BMP Program as a whole.

Best Practices. The BMP Foresters have a high degree of autonomy to implement and manage the BMP program within their work area, and have developed very similar systems of personal organization for managing contacts, complaints, requests, and pending sites. Interviews identified some of the best practices which contribute to a high rate of Courtesy Exam completion. Those best practices were classified as Organization, Communication and Education, and Field Practices:

Organization

- The most successful approach to organizing and prioritizing daily work was using a combination of planner, BMP logbook, and spiral notebook. Maintaining and continually updating a one page 'summary sheet' helps prioritize site visits and quickly see the status of all pending sites.
- Plan travel routes to maximize productive field time. Always have a planned route and destination sites to minimize driving time, though it is beneficial to vary routes for increased incidental locations of forestry activities.
- Regularly back up data that is on computer hard drives and cell phones.
- Most paperwork can be done during a couple of days at the end of the month. Minimize office time and resist the urge to do unnecessary paperwork. Documentation for each site should match the situation.

Communication and Education

- Strong relationships and frequent communication with other field staff within the agency greatly enhances local knowledge of current forestry activities. Awareness of the CE program can also be readily transferred from other field staff to landowners and forestry professionals in the area.
- Encourage landowners to notify BMP Foresters of planned forestry activities and request pre-harvest planning assistance and Courtesy Exams on their property.
- Telephone contact is preferred over email as faster and more immediate. Most BMP Foresters check email at their homes before or after work hours, and do not have regular access to email.
- Treat all complaints as anonymous, and document permission to access property.

Field Practices

- Ensure that all parties involved in the CE process are kept fully informed, and do not rely on one to pass information on to others.
- Use distinctive flagging to mark specific locations on a site that require attention.
- Random locations of forestry activities by air or ground add objectivity and are an important part of the BMP program. Avoid being too intrusive during contacts with loggers and buyers, who may be reluctant to share information and will be less willing to cooperate if pressed.

Opportunities. Along with identifying successful practices currently utilized by BMP Foresters, the interviews also revealed opportunities for further improvement of work processes. These

opportunities are organized into categories of Communication, Technology, and Future Directions.

Communication

- Improve internal communications to capitalize on local knowledge of project foresters and technicians and increase locations of active timber harvesting.
- Produce citations and background information supporting *SC BMPs for Forestry* to facilitate teaching why the practices are important.

Technology

- Develop a central database to replace monthly reporting by spreadsheet. A central database would streamline recordkeeping, minimize transposing and copying data, and provide a single record of contact information. Ideally, database reporting features would streamline paperwork and correspondence.
- Use mapping software to spatially track site locations and status, and assist with route planning.
- Seek a more user-friendly interface to consolidate commonly used spatial data such as maps of topography, hydrology, soils, and wetlands.
- Use smart phones or wireless Internet access for immediate access to email and data sources. This would reduce office time, and eliminate many trips to the office specifically to check email, maps, or data that could be available online.

Future Directions

- Provide a more formal mechanism for BMP Foresters to propose and act on projects that will further the goals of the BMP Program.

- Consider additional training in the areas of GIS, wetlands, stream identification, and road construction.
- Consider working four 10-hour shifts per week to increase efficiency and better match the work schedules of logging crews.

Limiting Factors. The factors limiting Courtesy Exam completion that were most-cited during the interviews were program quality, competing demands, and other duties. Emphasizing increased production of CEs does have the potential to conflict with maintaining the level of quality and service of the current program. Efforts to increase visits may provide unintended incentives for BMP Foresters to avoid the most complex and challenging sites where proper implementation of BMPs can have the greatest impact. A strong focus on efficient processes could lead to delayed response to complaints and requests for assistance, to less thorough checks of large operations, and to less detailed and specific recommendations for compliance. Courtesy Exams could also be increased by decreasing the time BMP Foresters spend on competing demands within the BMP Program and additional duties within the agency. Competing demands include many job duties that do not result in completed CEs, such as pre-harvest planning, responding to silvicultural water quality complaints, compliance monitoring, and developing and delivering education and training programs. Additional responsibilities within the agency can also require a time commitment, such as prescribed burning and wildfire control. Each of these factors must be considered and balanced with efforts to improve productivity, and must not be confused with meaningful changes in work processes to improve efficiency in the delivery of Courtesy Exams.

Recommendations and Implementation Plan

Performance data and interview results indicate that field practices during Courtesy Exams are fairly consistent among BMP Foresters. However, work processes involved with organizing sites, planning and prioritizing visits, and maximizing productive field time present opportunities to improve efficiency and increase completed Courtesy Exams. Four action items can be implemented to improve those processes with the goal of increasing production.

1. **Develop a data management system.** Improved handling of CE data would streamline the recording and reporting process and reduce office time. The system should incorporate information including site coordinates; contact information for landowner, logger, buyer, consultant, and receiving mills; BMP compliance; problem areas and recommendations; and related data. Desired outputs are monthly BMP reports, printing of Courtesy Exam forms, mail merge for correspondence, and service as a permanent record of Courtesy Exam performance and central source for contact information.

1. Develop a data management system.	
Timeframe	1 to 1.5 years to implement by program manager.
Cost	Primarily time using existing resources; dependent upon need for contract programming.
Obstacles	Programming skill; may require additional training or identification of proficient individuals.

Resources	Agency information technology staff, expertise in sister agencies in neighboring states.
Communication with Stakeholders	Internal with BMP team, IT staff and managers.
Integration	Adopt immediately once proven.

2. **Use mapping software to manage site locations.** Improved tracking of site location and status in a spatial format would speed planning of site visits, efficient travel routes, and trigger follow-up actions at appropriate times.

2. Use mapping software to manage locations.	
Timeframe	6 months to implement by designated BMP Forester.
Cost	Estimated \$1,400 - \$2,200 for purchase of evaluation software packages and implementation.
Obstacles	Learning curve for different programs.
Resources	Agency GIS specialists and others using similar software; DHEC grant funding.
Communication with Stakeholders	Internal with BMP team, IT staff and managers.
Integration	Adopt immediately.

3. **Establish mobile Internet access.** Availability of spatial data and reference information would contribute to better service during site visits and limit repeat visits. BMP

Foresters frequently visit a site for initial evaluation and must later travel to the office in order to check aerial photography, topographic maps, soils information, and other resources. Mobile Internet access would promote more rapid assessment of site conditions. Regular field access to a central data management system would also allow for a single entry of data while at the site, and reduce need for separate office time dedicated to transposing field notes into the necessary forms and reports.

3. Establish mobile Internet access.	
Timeframe	3 months to implement by program manager.
Cost	Approximately \$220/month.
Obstacles	Perception of unneeded state spending, and of special treatment for BMP Foresters. Must communicate benefits and savings.
Resources	Agency IT and procurement staff; DHEC grant funding.
Communication with Stakeholders	Internal with BMP team; keep agency personnel informed and document benefits.
Integration	Adopt immediately.

- 4. Improve internal communications.** SC Forestry Commission field personnel are underutilized by BMP Foresters. Forestry Technicians, Project Foresters, and Unit Foresters commonly cover large areas and are well-informed about forestry activities. Improving relationships and communications with personnel in other program areas

would allow BMP Foresters to capitalize on a highly efficient way of locating active forestry activities.

4. Improve internal communications.	
Timeframe	6 months to implement by all BMP Foresters.
Cost	Time and travel to field offices.
Obstacles	Resistance from other staff who may feel they are being requested to do extra work. BMP Foresters can offer assistance on other tasks and provide incentives for support.
Resources	Phone, email, and direct contacts.
Communication with Stakeholders	Internal with BMP team; inclusion of technicians, project, unit, and regional foresters.
Integration	Adopt immediately.

Evaluation Method

The primary determinant of successful improvement in efficiency of work processes is an increase in the rate of CE completions. The benchmark based on the previous two years is 9.7 Courtesy Exams per month completed by each BMP Forester. Several of the action items focus on increasing the number of site visits as a means of increasing CE completions. For the past two years, BMP Foresters have averaged 35.2 site visits per month. Efforts to improve internal communications will be measured by the number of sites referred to BMP Foresters from within the agency.

Since BMP Program duties are not limited to Courtesy Exams, it will be important to monitor overall accomplishments to ensure that CE increases are not made at the expense of other responsibilities. Tracking performance data for aerial detection, outreach and delivery of training programs, compliance monitoring, and response to complaints will be necessary to maintain desirable levels of service.

Summary and Recommendations

Two years of performance data, flowcharting the CE process, and in-depth interviews indicate that field practices and CE services offered are highly consistent among BMP Foresters.

Differences emerge in methods of preparation, recording, and reporting. Improving the associated work processes will result in reduced office time and more efficient travel time, leading to increased numbers of site visits and Courtesy Exam completions.

Four action items were identified:

- 1) Develop a data management system.
- 2) Use mapping software to manage site locations.
- 3) Establish mobile Internet access.
- 4) Improve internal communications.

Recommended timeline:

<u>Date</u>	<u>Task</u>	<u>Who</u>
Feb	Purchase wireless Internet cards.	Program Manager
Feb-Mar	Compile most valuable online resources for field use.	BMP Team
Feb-Mar	Meet with BMP team to discuss internal communications.	BMP Team
Mar-Apr	Evaluate GIS and Access as data system platforms.	Program Manager
Mar-May	Contact other agency personnel with request for site locations.	BMP Foresters
Apr-Jul	Evaluate available mapping software and compatibility.	Designated BMP Forester
May-Jul	Follow-up with agency personnel every 2-3 weeks.	BMP Foresters
May-Jul	Provide small incentives such as new safety glasses, tick and insect repellent, or other items.	BMP Foresters
May-Sep	Create and test database.	Program Manager
Aug-Sep	Field testing of mapping software.	BMP Foresters
Oct-Jan	Develop reports and forms for database.	Program Manager
Feb-Mar	Field test and evaluate database	BMP Foresters

Success of the action items will be evaluated by:

- 1) Increases above an average of 9.7 Courtesy Exams per month by each BMP Forester.
- 2) Increases above an average of 35.2 site visits per month by each BMP Forester.
- 3) The number of sites referred to BMP Foresters from within the agency.
- 4) Stable outputs in other job duties.

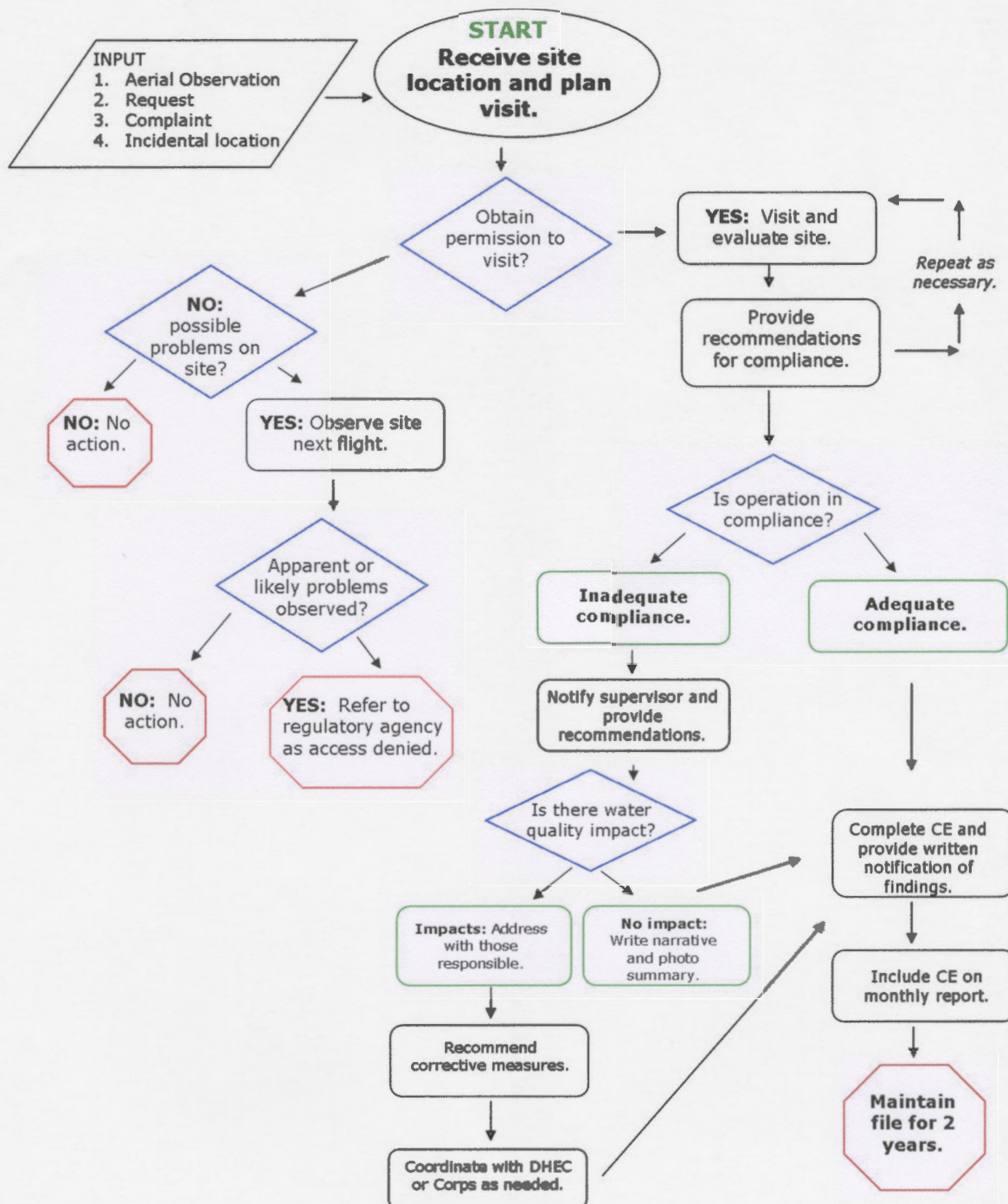
Successful implementation of this plan will better utilize the professional skills of BMP Foresters, and result in improved BMP services on a greater number of forestry operations.

APPENDICES

1. Flow chart of the BMP Courtesy Exam Process.
2. Job duties of BMP Foresters.
3. In-depth interview questions.
4. Courtesy Exam performance data.
5. Site Visit performance data.
6. Combined CE and Site Visit performance data.

Appendix 1: Flow chart of the BMP Courtesy Exam process.

Processes of the BMP Courtesy Exam Program



Appendix 2: Job duties of BMP Foresters.

JOB DUTIES		Performance Level
1. Job Duty:	Coordinate the BMP Courtesy Exam Program for the assigned Area.	
Success Criteria:	Offer courtesy BMP exams to forest landowners/loggers on active forestry operations found by SCFC foresters, complaints, or through voluntary notification. Respond to BMP related complaints within three working days. Assist other agencies, including DHEC, Corps of Engineers, and DNR with forestry related issues. Coordinate aerial observation on a monthly basis to locate active sites. Keep accurate records of all activities, including records of aerial surveys, BMP recommendations, complaints, and courtesy exams. Submit reports to the program coordinator by the 5 th of each month. Complete an average of 10 courtesy exams per month to Meet, or 12 per month to Exceed standard.	
2. Job Duty:	Coordinate BMP educational program for the assigned Area.	
Success Criteria:	Develop and deliver BMP-related training programs, including Timber Operations Professional programs and workshops. Provide presentations to civic groups, garden clubs, landowner associations, professional groups, and other special interest groups. Conduct other outreach to improve awareness and compliance with BMPs. Participate in at least 5 BMP-related training programs to Meet, or 7 to Exceed standard.	
3. Job Duty:	Assist with statewide BMP monitoring surveys and special projects.	
Success Criteria:	Assist with statewide BMP monitoring by assisting with planning and survey design, locating sample sites, contacting landowners, and making on-site BMP compliance evaluations for the assigned counties. Complete field evaluations by specified deadlines, and maintain records for use in data analysis.	
4. Job Duty:	Encourage the use of & familiarity with BMPs by SCFC personnel.	
Success Criteria:	Conduct training, both classroom and field, for project foresters, unit foresters, technicians, and other SCFC personnel. Meet with forester as requested on sites where clarification of guidelines is needed. Share information on changes/application of BMPs with SCFC personnel. Prepare and submit a minimum of three (3) items related to program activities for inclusion in the weekly bulletin news. Provide a BMP update for at least two internal meetings.	
5. Job Duty:	Assist SCFC personnel, foresters, and landowners with environmental management issues.	
Success Criteria:	Serve as contact in the Coastal Area for environmental and ecosystem services issues, including endangered species, wetlands, carbon sequestration, and stormwater. Provide information and assistance to SCFC personnel, foresters, and landowners regarding environmental management as it relates to forestry. Keep records of all activities including site visits and site-specific recommendations.	
6. Job Duty:	Perform other related duties as required	
Success Criteria:	Attend region staff meetings as requested, perform administrative duties of job, fulfill fire management duties as required, and assume other regional responsibilities as assigned.	
ACTUAL PERFORMANCE		

Appendix 3: In-depth interview questions.

Mission and Goals

1. What is the most important part of your job?
2. What parts of your job are the highest priority?
3. How does your work fit into the SCFC Strategic Plan?

Personal Organization, Relationships, and Outside Duties

1. Describe how you plan your week, manage your time, schedule visits.
2. How do you maintain contacts for loggers and buyers?
3. What interaction do you have with field staff? IMT/Fire? Education?
4. Describe duties performed other than CE.
5. Any ways to improve relationships with forestry community and others?
6. How could you better communicate with loggers, landowners, public, officials, SCFC?

Reference Materials, Equipment, Training and Support

1. Do you have the knowledge to properly do your job?
2. What reference materials do you use most?
3. What publications do you use regularly?
4. How do you get and use maps, photography, GIS?
5. Explain your equipment use, conditions, and needs.
6. Has any of your equipment proven ineffective or unreliable?
7. What additional support do you need?
8. What additional training would benefit your job performance?

Courtesy Exam Initiation and Planning

1. Describe the Courtesy Exam Process, compare with flow chart.
2. How do you locate and initiate Courtesy Exams?
3. What do you do when you receive a request?
4. What do you do when you receive a complaint?
5. How do you organize pending sites?
6. What steps do you take to acquire permission to go on site?
7. What would help to locate and initiate Courtesy Exams?

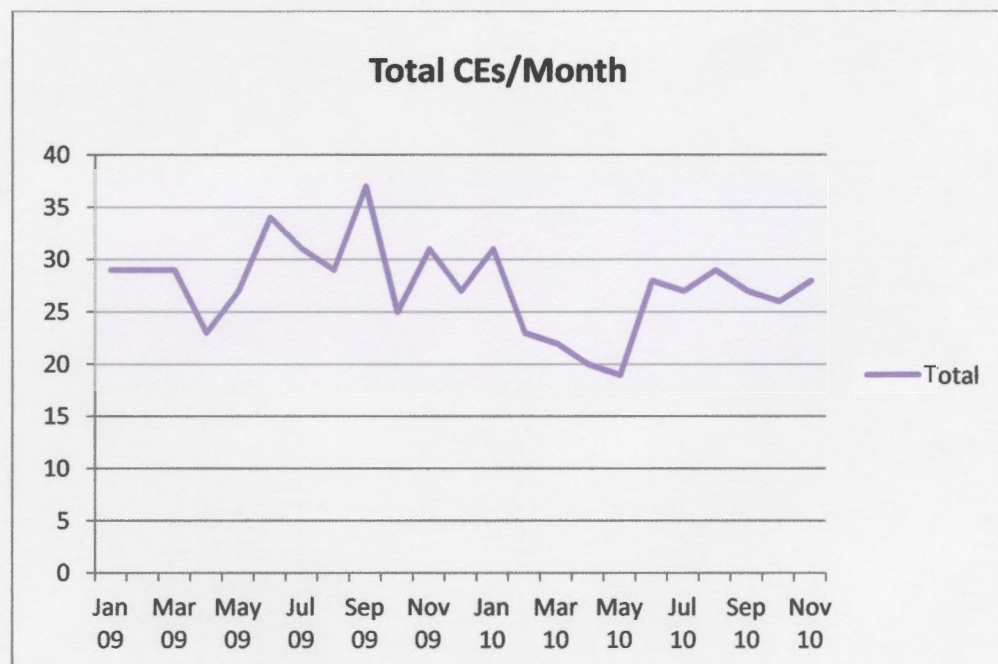
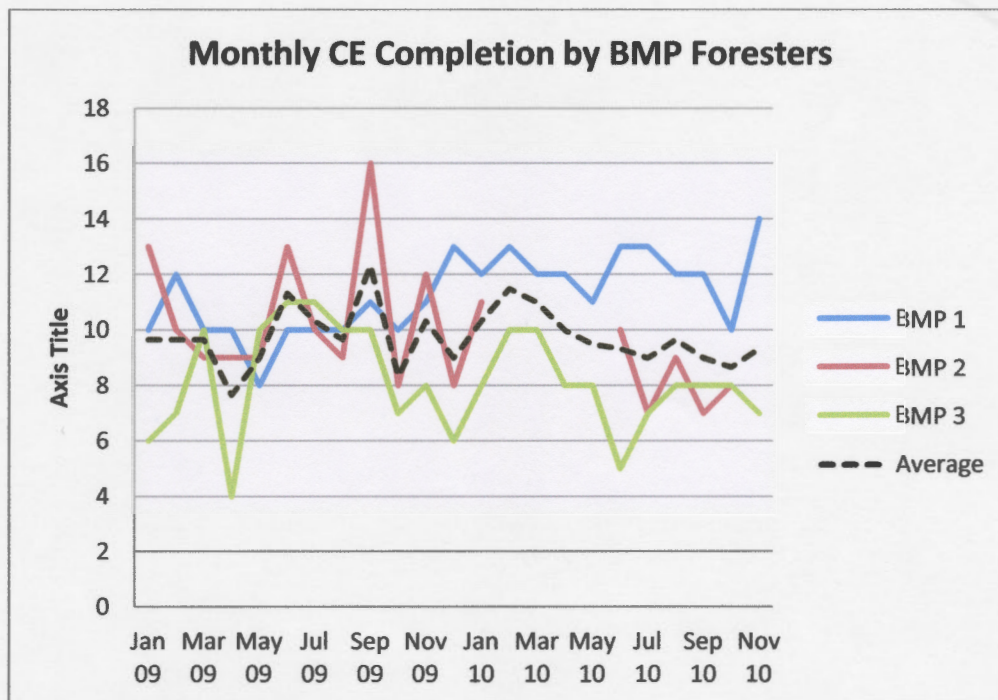
Courtesy Exam Completion and Reporting

1. How do you provide recommendations for compliance on an active site? How detailed are your recommendations?
2. Describe how you handle inadequate sites.
3. Explain your filing system.
4. How long between closing a site and completing paperwork?
5. How do you maintain and complete paperwork, letters, and reporting?
6. What could be done to streamline or improve this process?

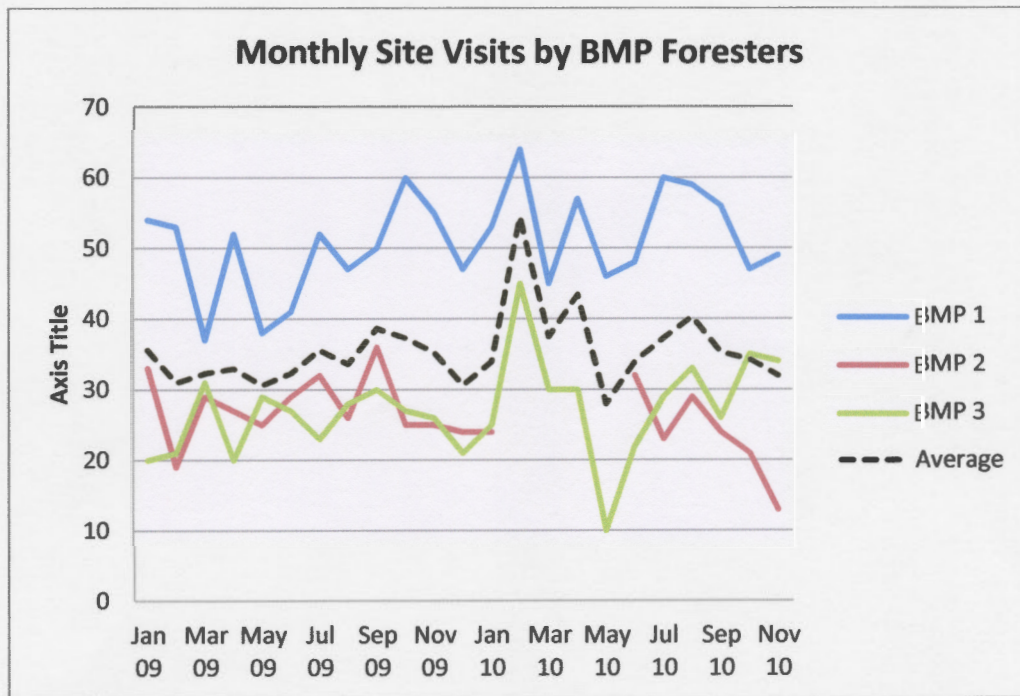
Opportunities and Barriers

1. What barriers do you have to performing your job?
2. What parts of the job most limit your CE productivity?
3. What would allow you to be more efficient and accomplish more?

Appendix 4: Courtesy Exam Performance Data.



Appendix 5: Site Visit Performance Data.



Appendix 6: Combined CE and Site Visit Performance Data.

